

The State of Physical Activity in America

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1. What percentage of U.S. youth and adults meet aerobic and muscle strengthening guidelines?
2. What population groups are most at risk to not meet aerobic and muscle strengthening guidelines?
3. Is the percentage of those meeting aerobic and muscle strengthening guidelines changing over time?



NOT Going to Present

- Data from:
 - Device-based assessments
 - Sedentary behaviors
 - Community supports
 - Policies



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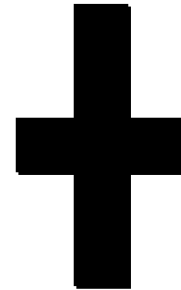
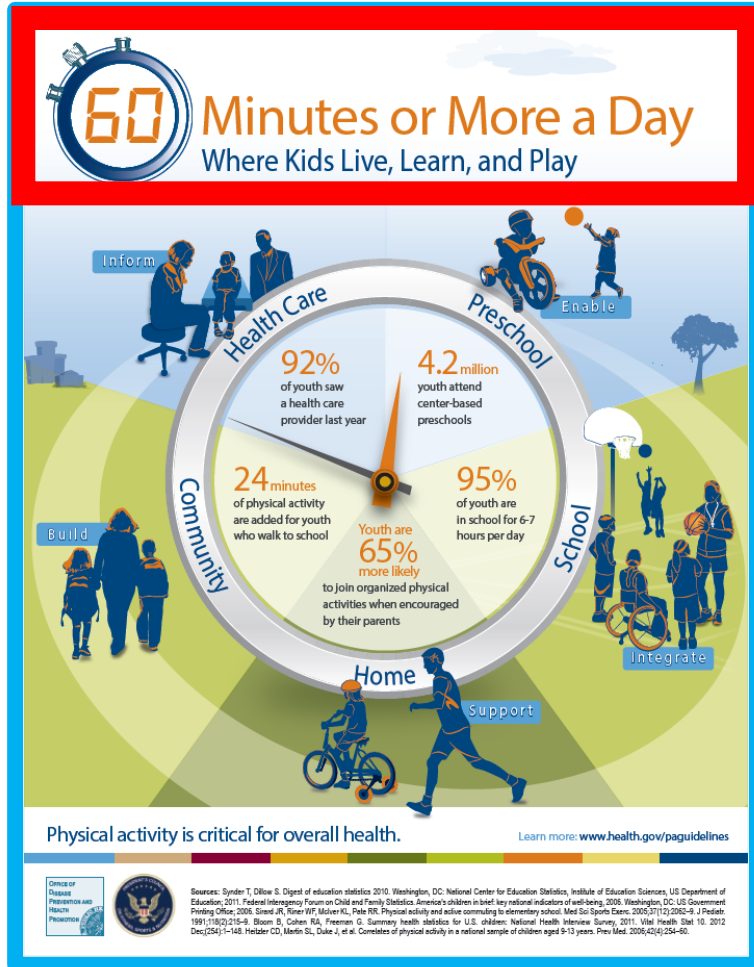
Ongoing systematic collection, analysis,
and interpretation of outcome-specific
data for use in the planning,
implementation, and evaluation of public
health practice.

Thacker SB, Berkelman R. Epidemiol Rev. 10:164-190, 1988.



Youth Physical Activity Guidelines

Physical Activity
Guidelines for
Americans

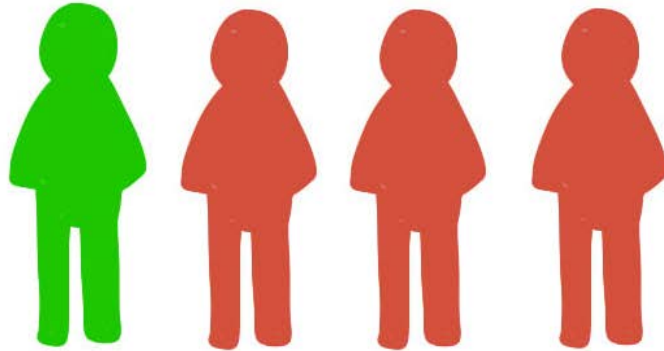


3 days / week:

- ✓ Vigorous-intensity
- ✓ Bone strengthening
- ✓ Muscle strengthening

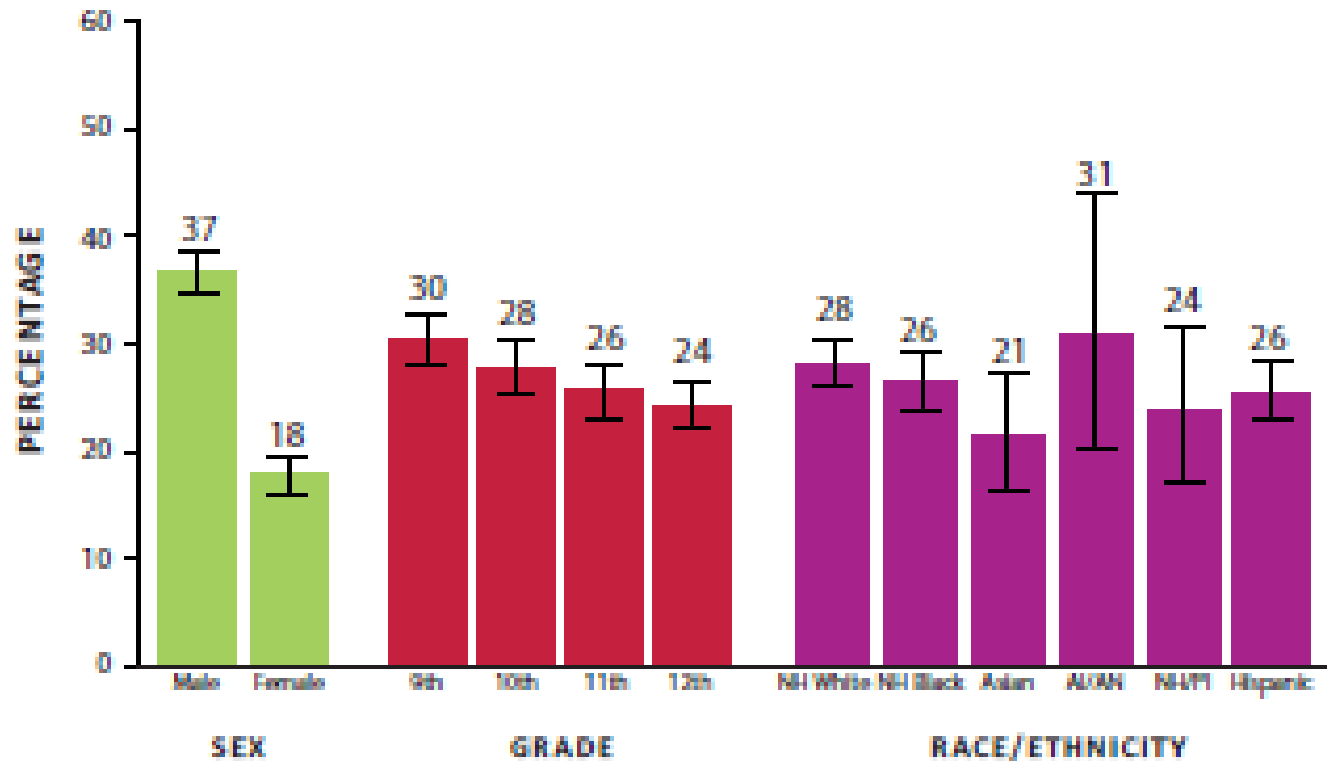
- ✓ Variety
- ✓ Fun!

High School Students, 2013



- About 1 out of 4 high school students meet the aerobic guideline

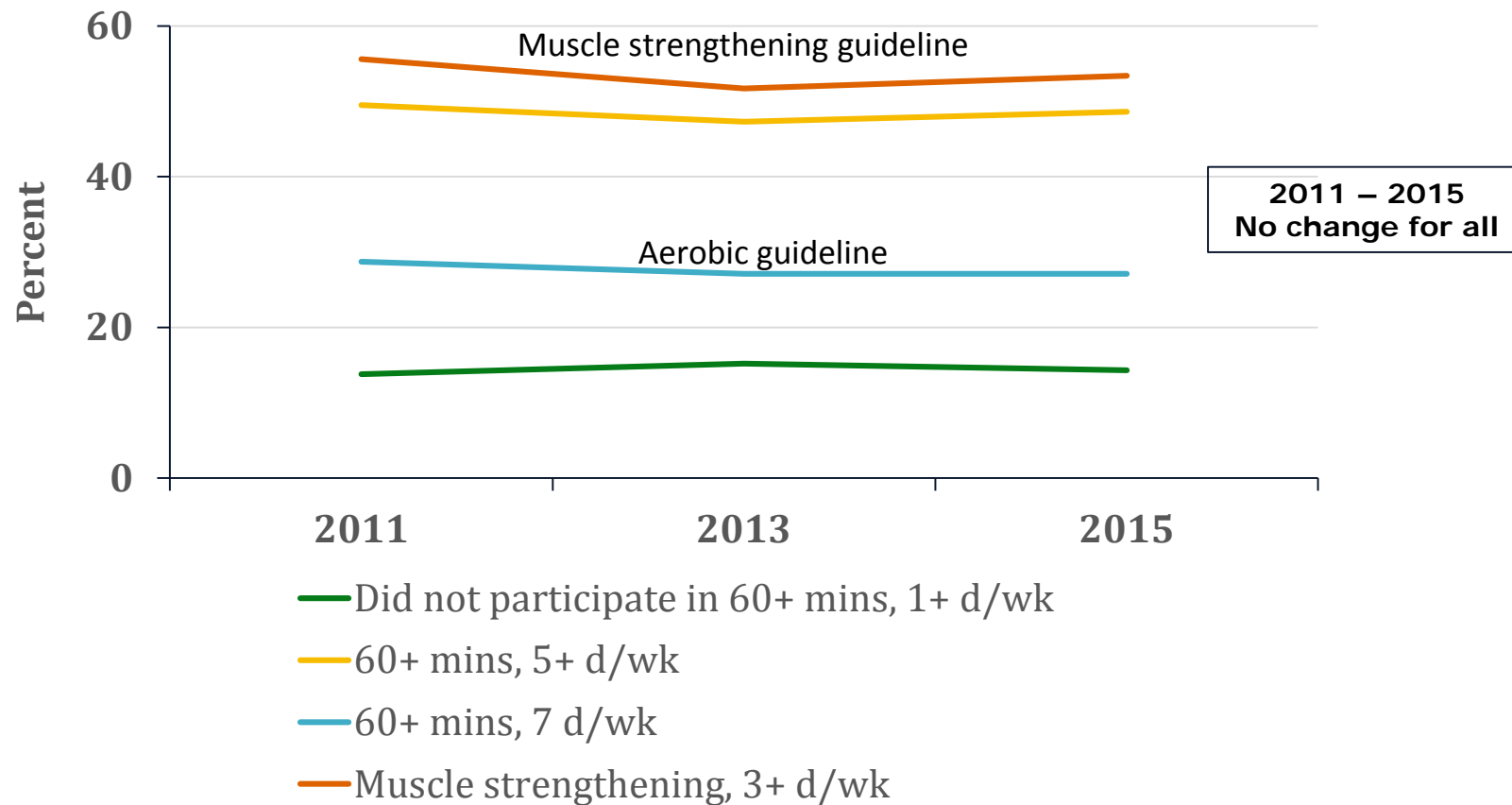
Percentage of U.S. High School Students Who Met the Aerobic Physical Activity Guideline, Youth Risk Behavior Surveillance System 2013



USDHHS. Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2015.

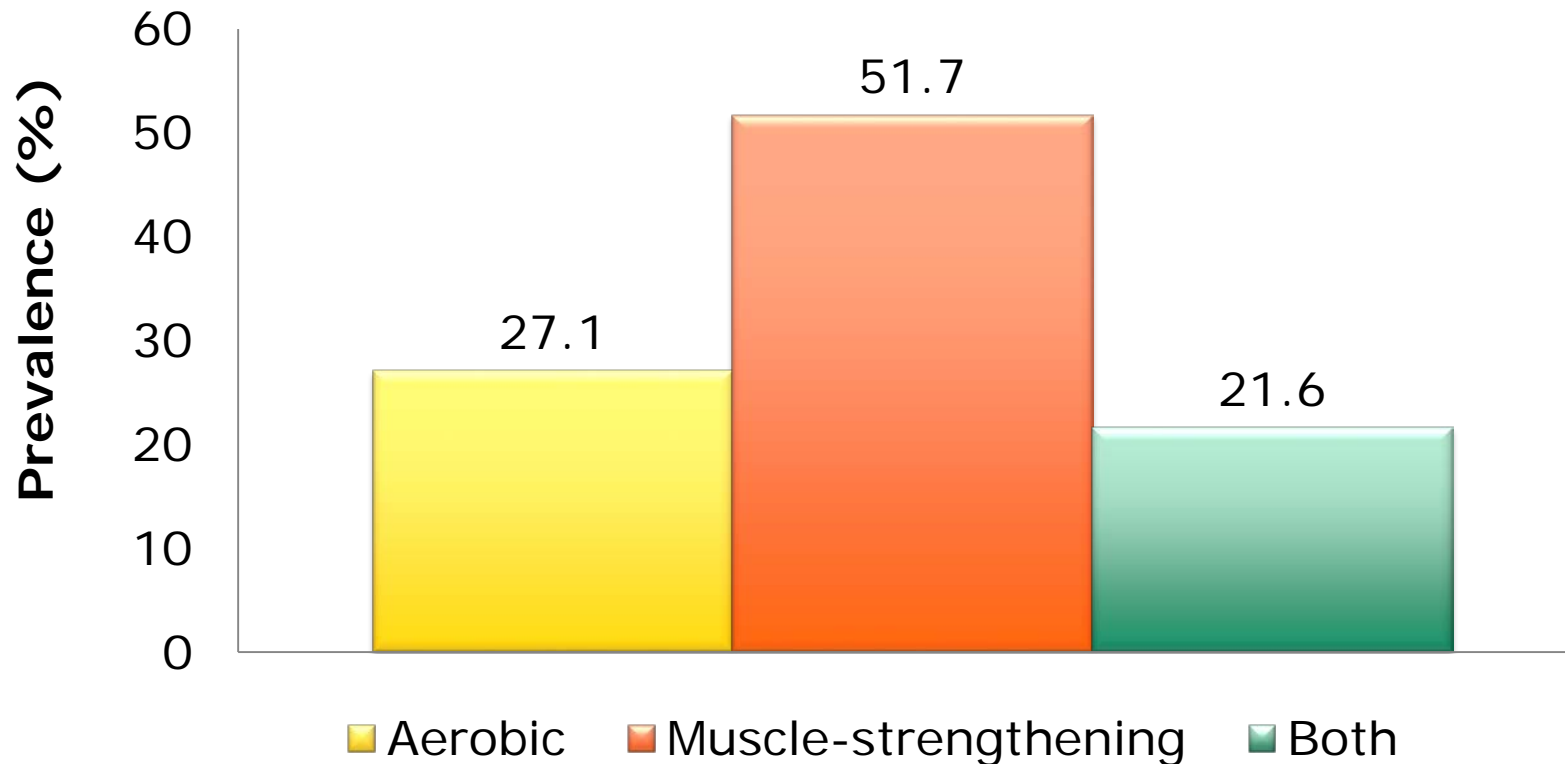


Trends in Physical Activity and Muscle Strengthening, Youth Risk Behavior Surveillance System, 2011 – 2015



Youth Physical Activity

**Prevalence of High-School Youth Meeting
Healthy People 2020 Physical Activity Objectives,
Youth Risk Behavior Surveillance System, 2013**



www.healthypeople.gov/2020



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Top 10 Physical Activities of U.S. High School Students Overall and by Sex, National Youth Physical Activity and Nutrition Survey, 2010

Ranking	Overall		Girls		Boys	
	Activity	%	Activity	%	Activity	%
1	Walking	82.3	Walking	85.6	Walking	79.0
2	Running/Jogging	71.8	Running/Jogging	69.9	Running/Jogging	73.7
3	Weight lifting	45.2	Dance	52.1	Weight lifting	62.4
4	Basketball	44.6	Active video games	40.4	Basketball	57.9
5	Active video games	40.8	Basketball	31.0	Active video games	41.2
6	Dance	33.7	Aerobics	30.6	Football	40.4
7	Bike riding	29.5	Weight lifting	27.5	Bike riding	33.5
8	Football	26.4	Bike riding	25.3	Baseball	26.7
9	Aerobics	25.8	Swimming	24.1	Soccer	21.9
10	Swimming	22.3	Volleyball	21.8	Aerobics	21.2

Song M, et al. J Phys Activity and Health. 12(Suppl 1): S 11-17, 2015



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Challenges – Youth Physical Activity

Physical Activity
Guidelines for
Americans

- Limited information for youth less than high school age
- Measurement challenges
 - May require alternative method for \leq elementary age
- Difficult to measure totality of guidelines (bone strengthening)
- Limited trend data



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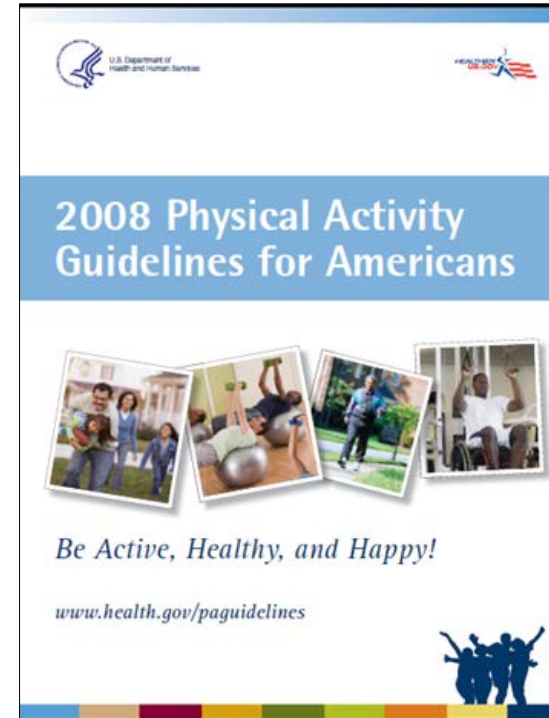


2008 Physical Activity Guidelines for Americans

Adult Aerobic Guidelines

Physical Activity
Guidelines for
Americans

- Avoid inactivity
- For substantial health benefits
 - \geq 150 minutes of moderate-intensity equivalent aerobic activity per week; or
- For more extensive health benefits
 - $>$ 300 minutes of moderate-intensity equivalent aerobic activity per week; or
- Muscle-strengthening activities 2+ days/week



<http://www.health.gov/paguidelines>



Traditional Health Surveys

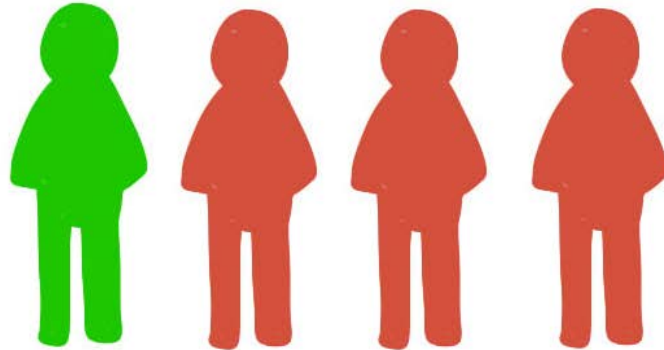
Health Survey	Collection Method	Physical Activity Domains	Survey Years	Measure
Behavioral Risk Factor Surveillance System (BRFSS)	Survey Questions	Non-occupational	2011-2015	Minutes of top two physical activities in past week or past month
National Health and Nutrition Examination Survey (NHANES)	Survey Questions (In-person)	Leisure-Time	2007-2015	Minutes of vigorous- and moderate-intensity leisure-time activity in typical week
		Active Transportation	2007-2015	Minutes of walking and bicycling for transportation in typical week
		Work (paid/unpaid)	2007-2015	Minutes of vigorous- and moderate-intensity work activity in typical week
National Health Interview Survey (NHIS): Sample Adult Survey	Survey Questions	Leisure-time	1997-2015	Minutes of vigorous- and light- to moderate-intensity activity in respondent selected recall period.
National Health Interview Survey (NHIS): Cancer Supplement	Survey Questions	Active Transportation	2005, 2010, 2015	Minutes of transportation walking in past 7 days



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High School Students, 2013



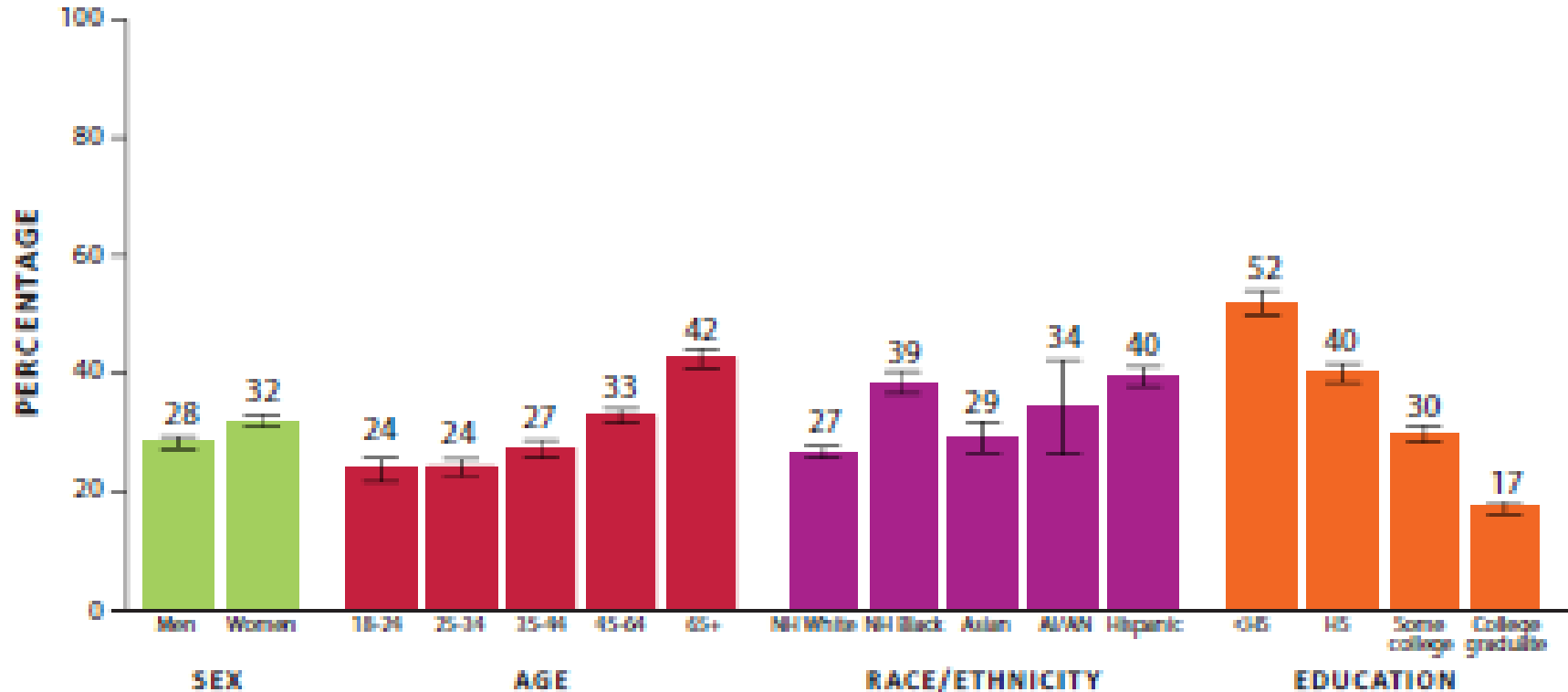
- About 1 out of 4 high school students meet the aerobic guideline

Adults, 2014



- 5 out of 10 adults meet the aerobic guideline
- 3 out of 10 are inactive

Percentage of U.S. Adults Who Were Inactive During Their Leisure Time NHIS, 2013

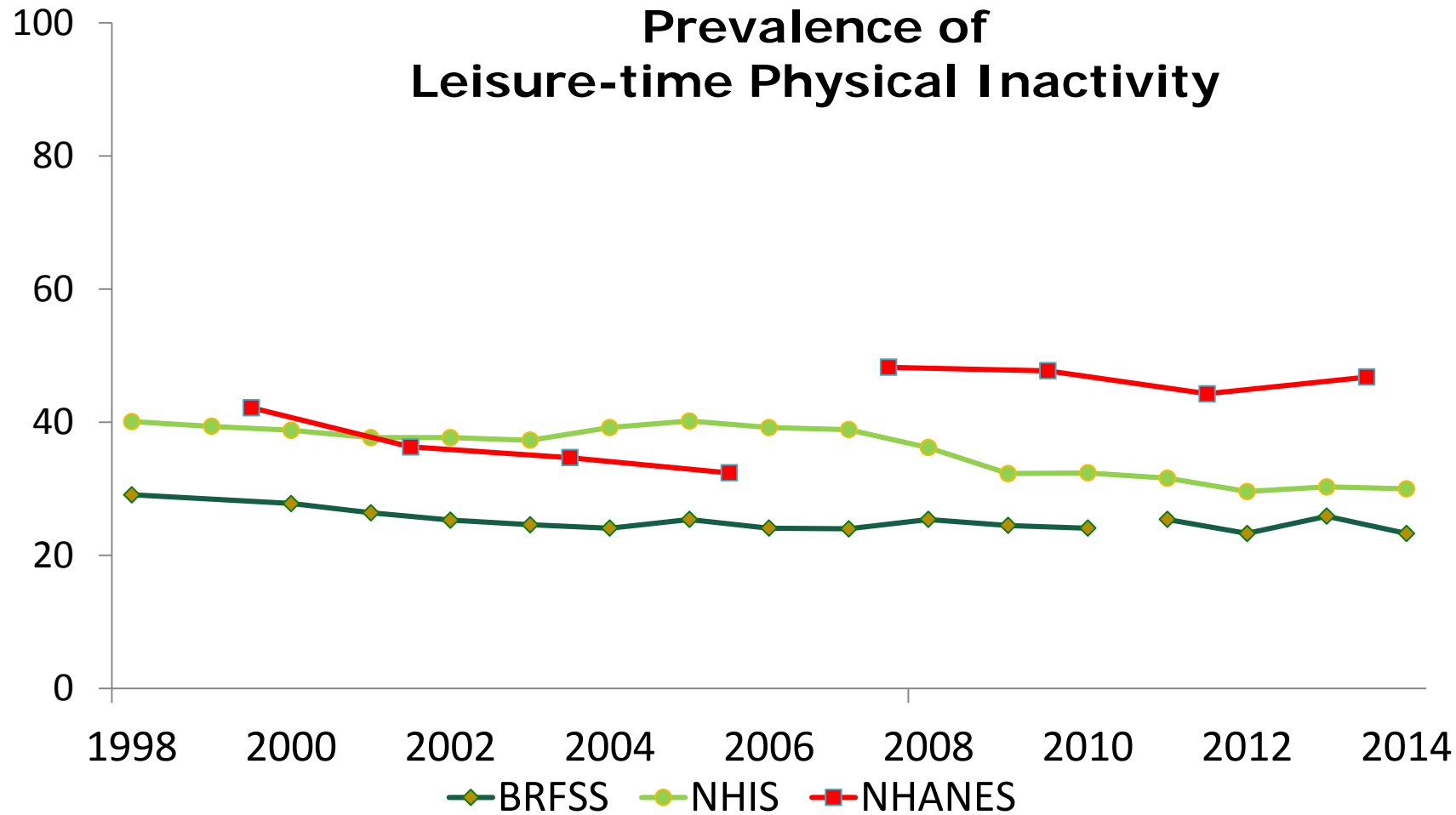


USDHHS. Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2015.



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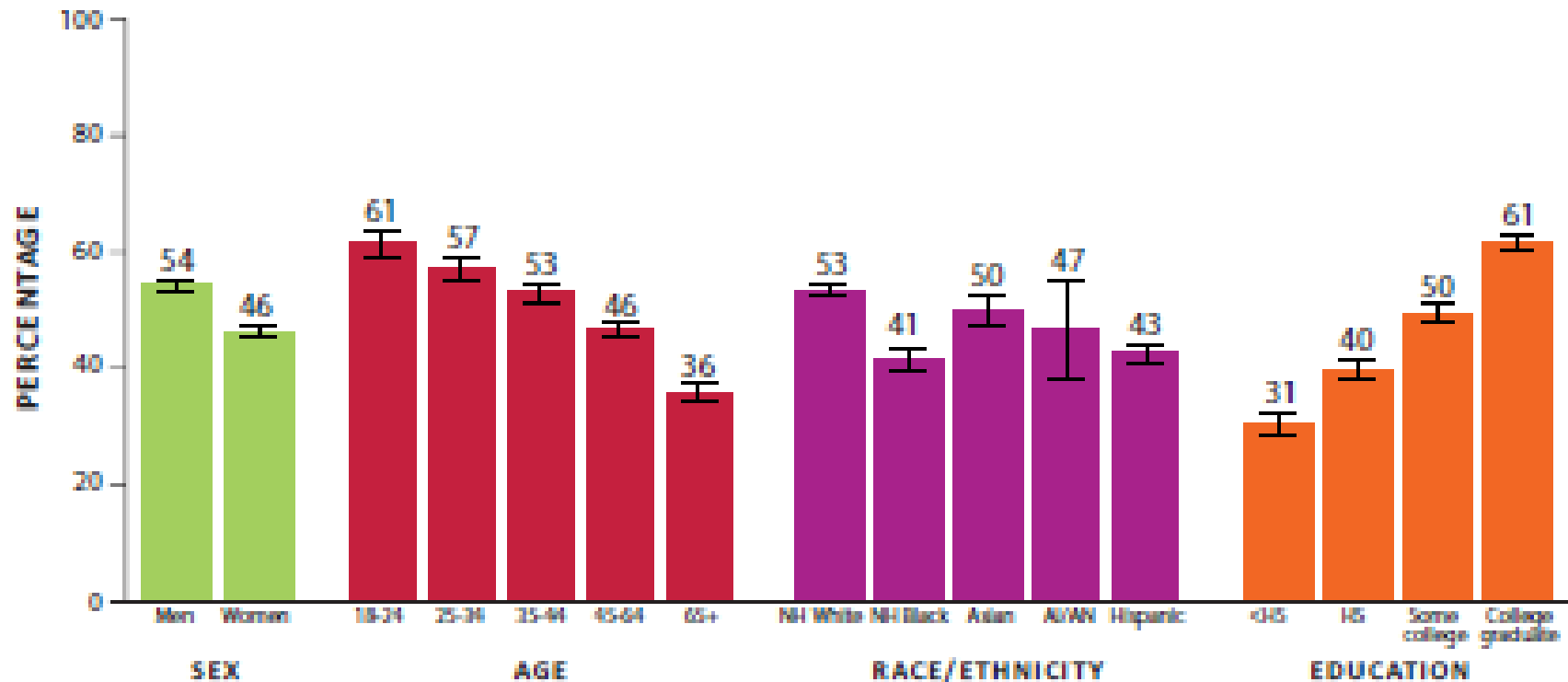
Note: In 2011, BRFSS changed survey methodology. In 2007, NHANES changed physical activity questions.



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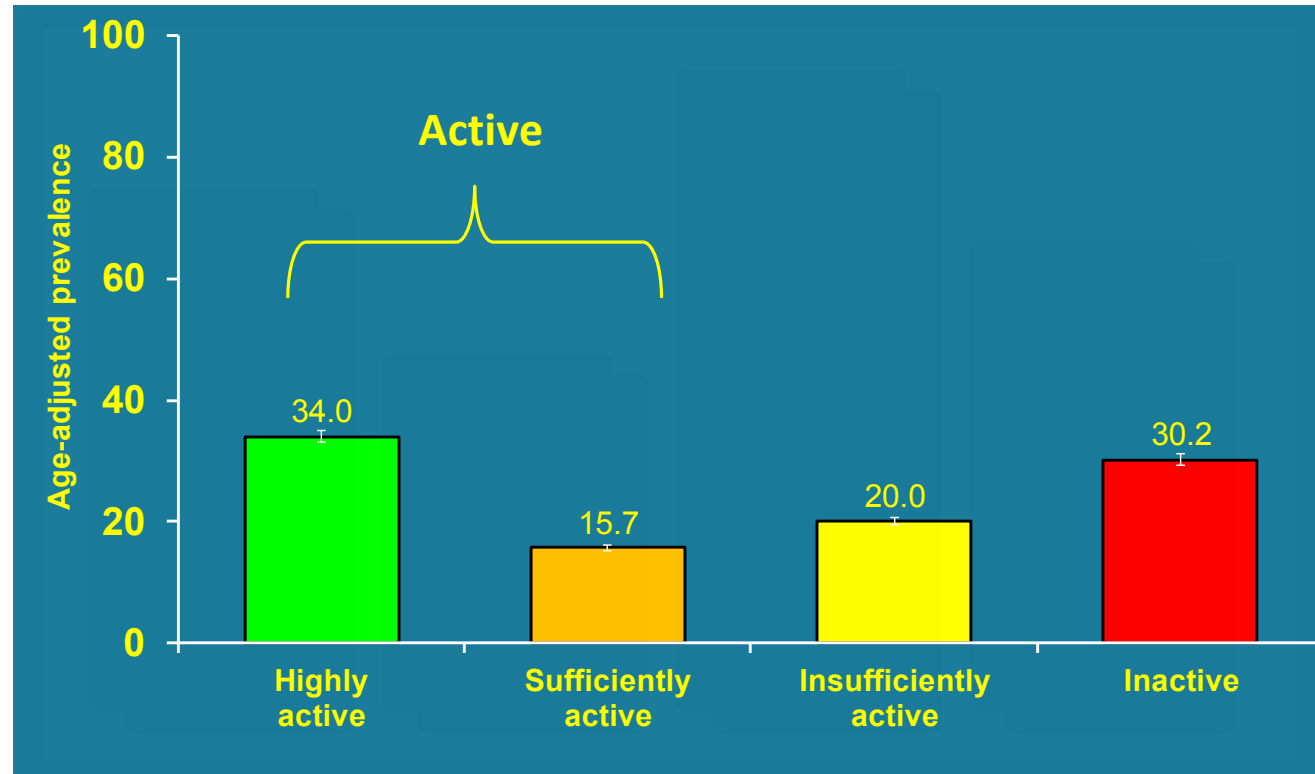


Percentage of U.S. Adults Who Met the Aerobic Physical Activity Guideline, NHIS 2013



USDHHS. Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2015.

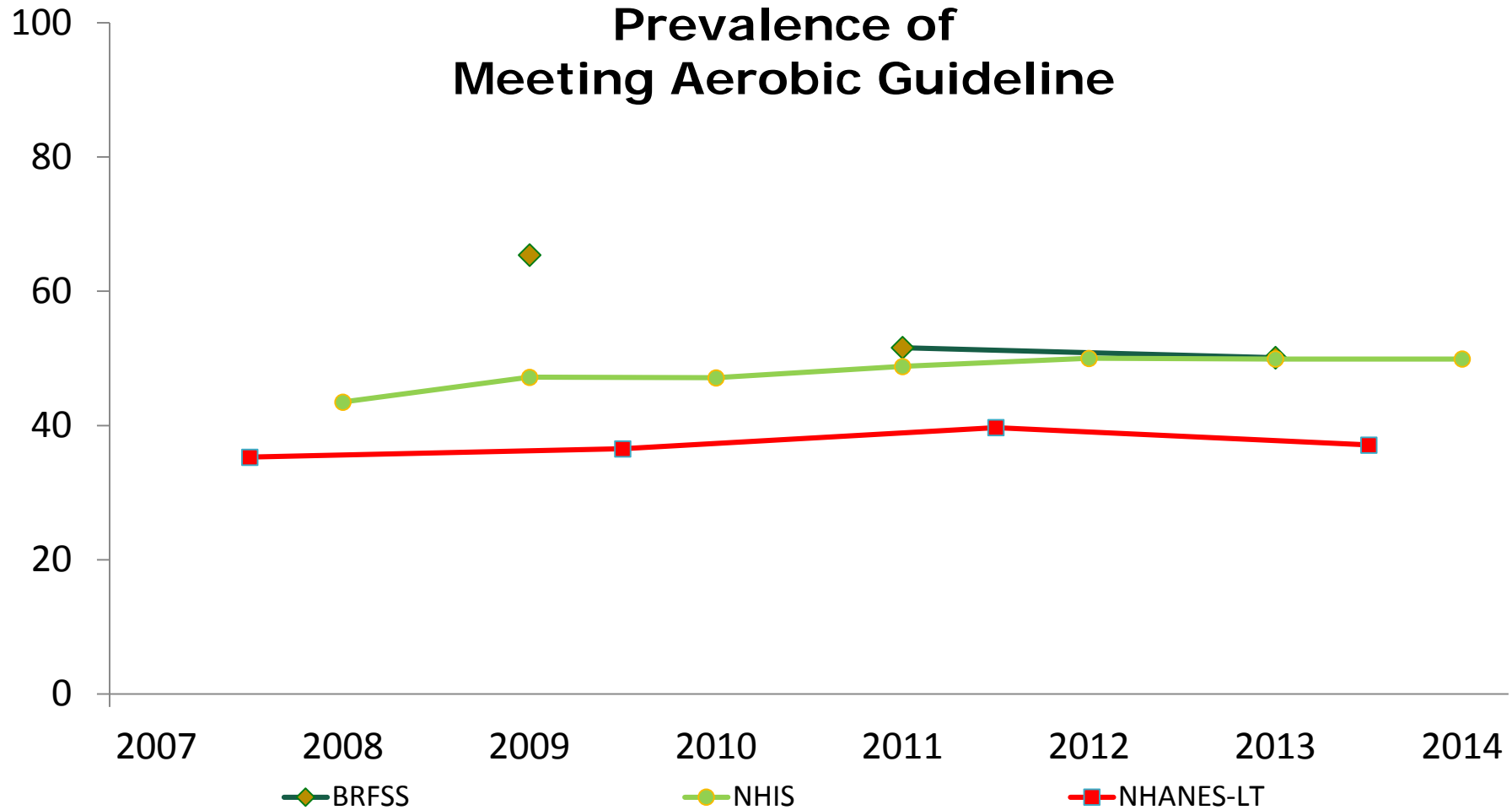
Prevalence of Aerobic Physical Activity in Four Levels, NHIS 2014



Highly active (>300 min/wk moderate-intensity activity, >150 min/wk vigorous-intensity activity, or equivalent combination), sufficiently active (150-300 min/wk moderate-intensity activity, 75-150 min/wk vigorous-intensity activity, or equivalent combination), insufficiently active (some activity but not enough to meet active definition), and inactive (no activity of at least 10 min/time).

Adult Physical Activity

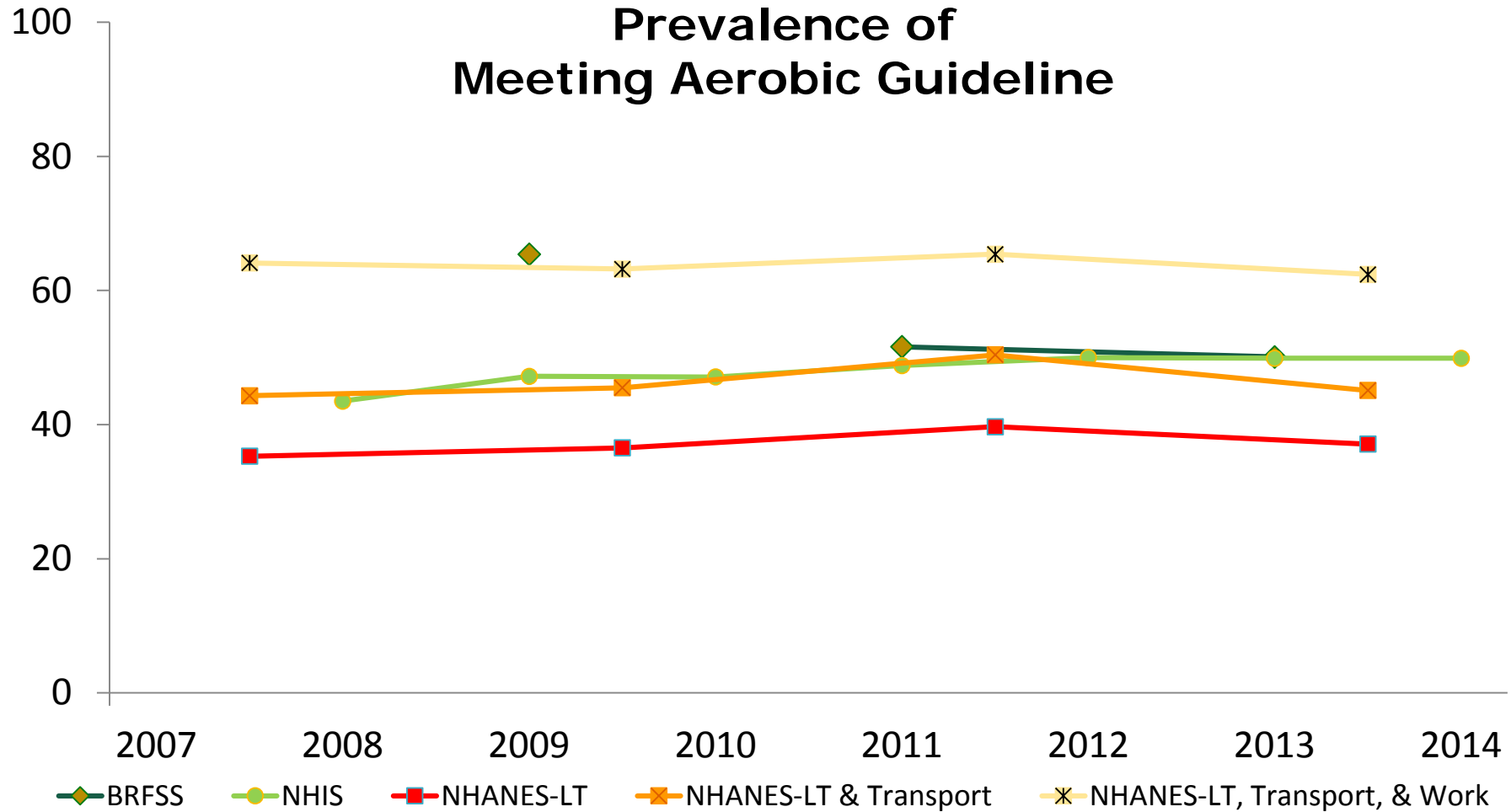
Physical Activity
Guidelines for
Americans



Note: In 2011, BRFSS changed survey methodology. In 2007, NHANES changed physical activity questions.



Adult Physical Activity



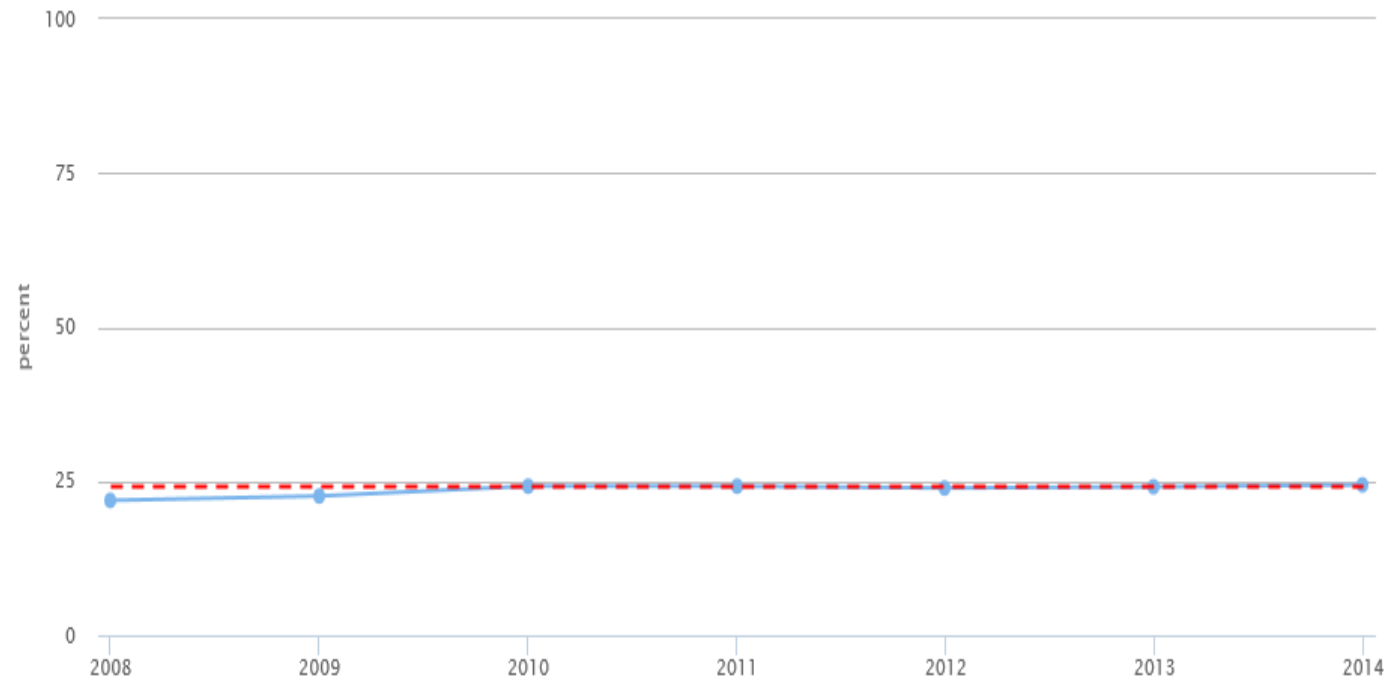
Note: In 2011, BRFSS changed survey methodology. In 2007, NHANES changed physical activity questions.



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Adults Performing Muscle-Strengthening Activities 2+ Days/week, NHIS 2008 – 2014



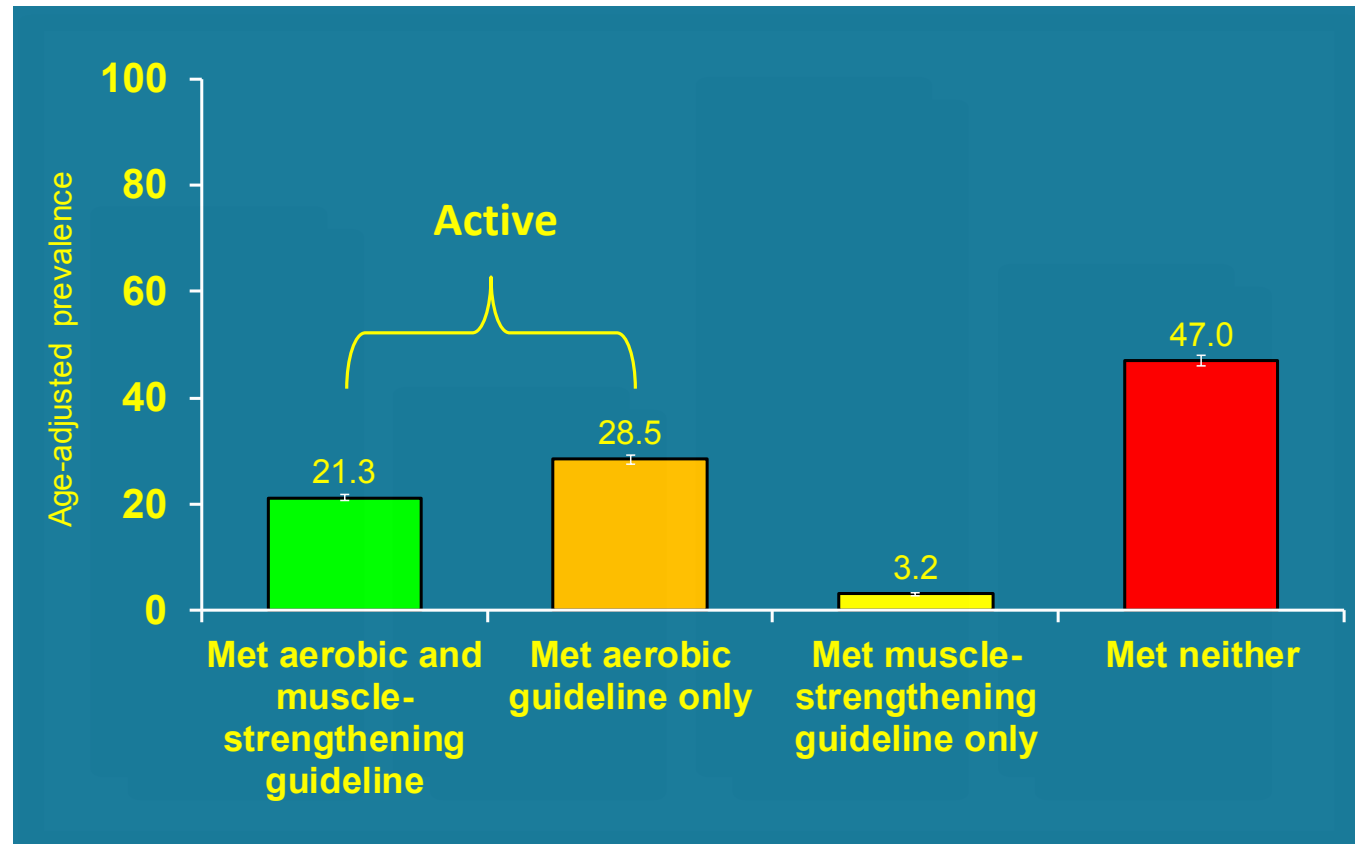
POPULATIONS	2008	2009	2010	2011	2012	2013	2014
TOTAL	21.9	22.6	24.2	24.2	23.9	24.1	24.4



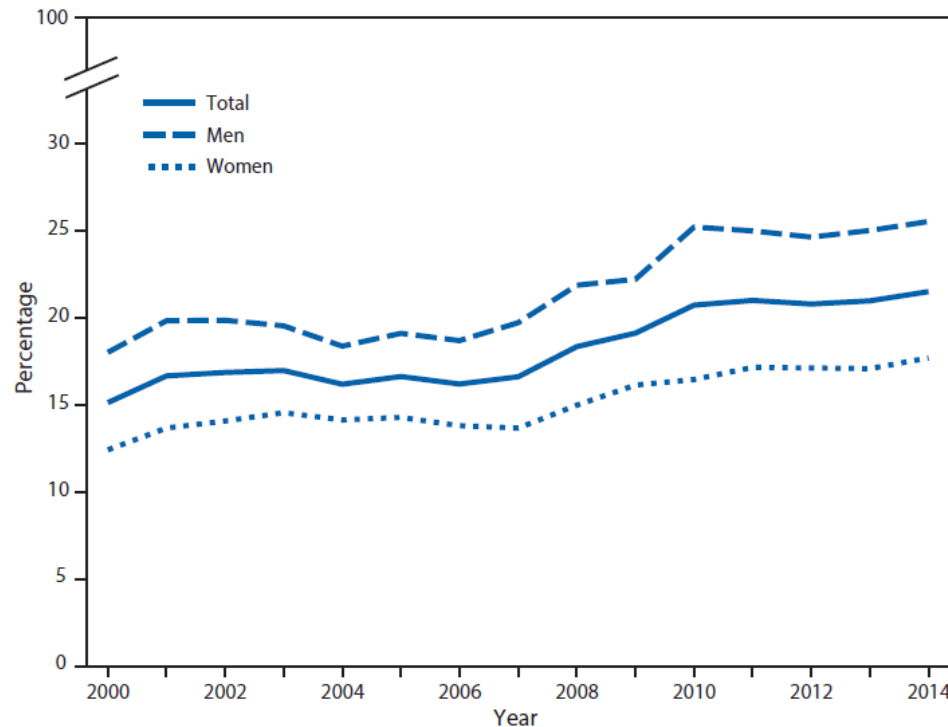
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Percentage of Adults Who Met Muscle-Strengthening and Aerobic Guidelines, NHIS 2014



Percentage of Adults Who Met Guidelines for Aerobic and Muscle-Strengthening Activity* by Sex, NHIS 2014



*Based on self-reports of frequency and duration of light-moderate and vigorous leisure-time aerobic physical activity and frequency of leisure-time strengthening activity at levels consistent with federal physical activity guidelines for adults.

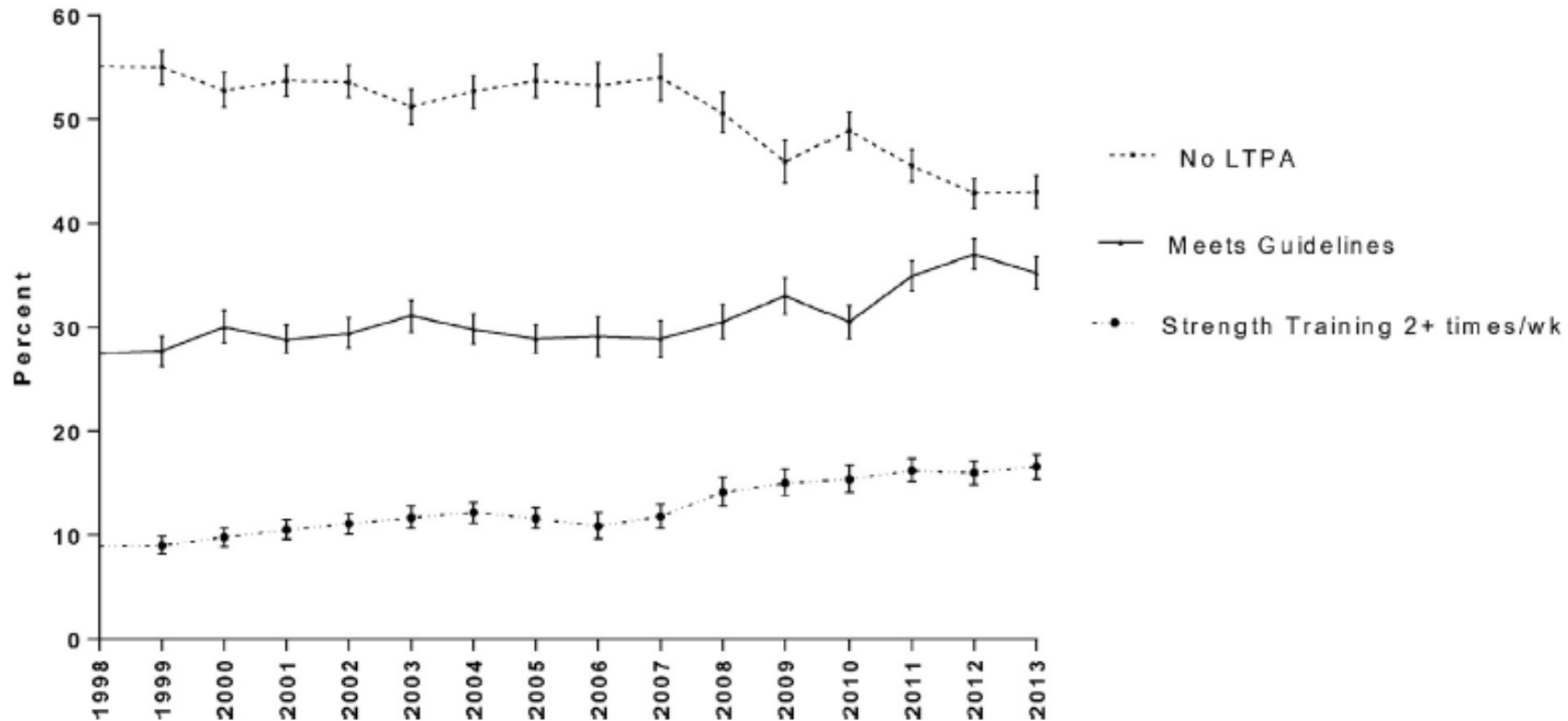
Nugent C, Schoenborn C. *MMWR*. May 13, 2016. Vol. 65 (18), 485.



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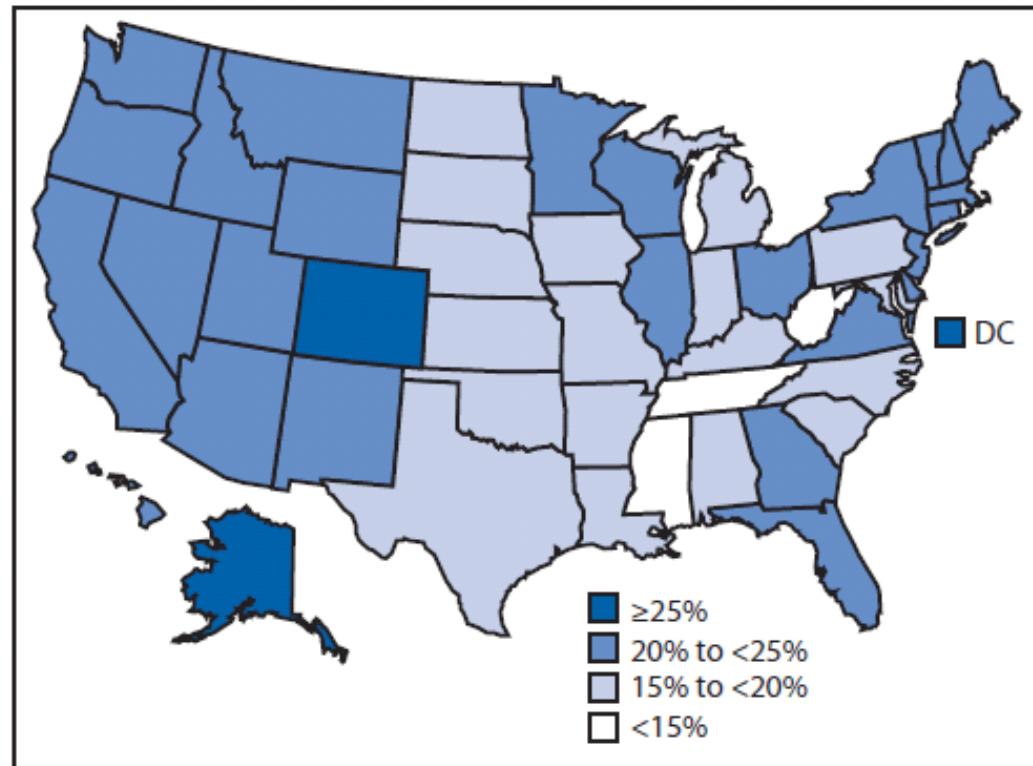


Trends in Leisure-Time Aerobic Physical Activity and Muscle Strengthening Among Adults Ages 65+, NHIS 1998 – 2013



Keadle SK, et al. *Prev Med.* 89:37-43, 2016.

Proportion of U.S. adults meeting both aerobic and muscle-strengthening physical activity guidelines,* by state Behavioral Risk Factor Surveillance System, 2011

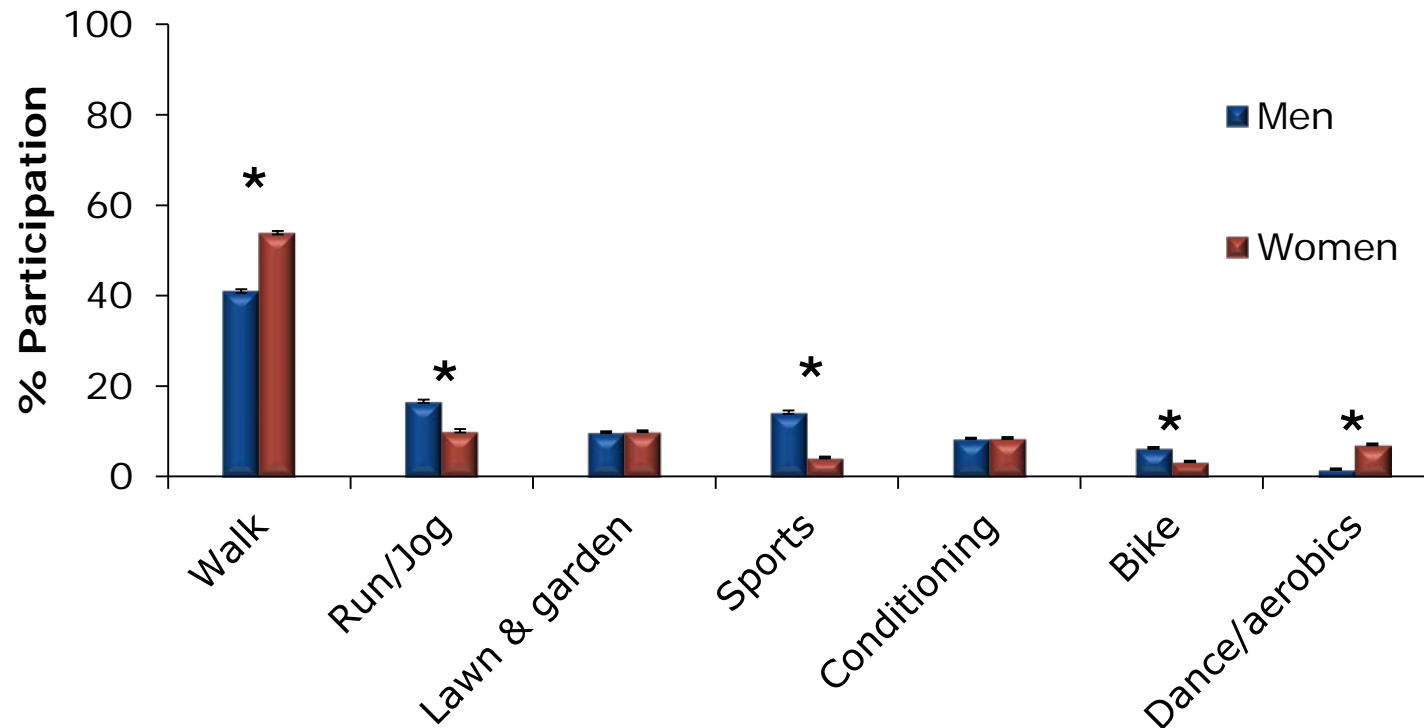


Nationwide,
20% meet
aerobic and
muscle-
strengthening
guidelines

* To meet both the aerobic and muscle-strengthening guidelines, respondents had to report ≥ 150 mins/week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic activity/week, or an equivalent combination of moderate- and vigorous-intensity activity and participating in muscle-strengthening physical activity at least 2 times per week.

MMWR. May 3, 2013 / 62(17); 326-330.

Participation in Types of Activities By Sex, Behavioral Risk Factor Surveillance System, 2011

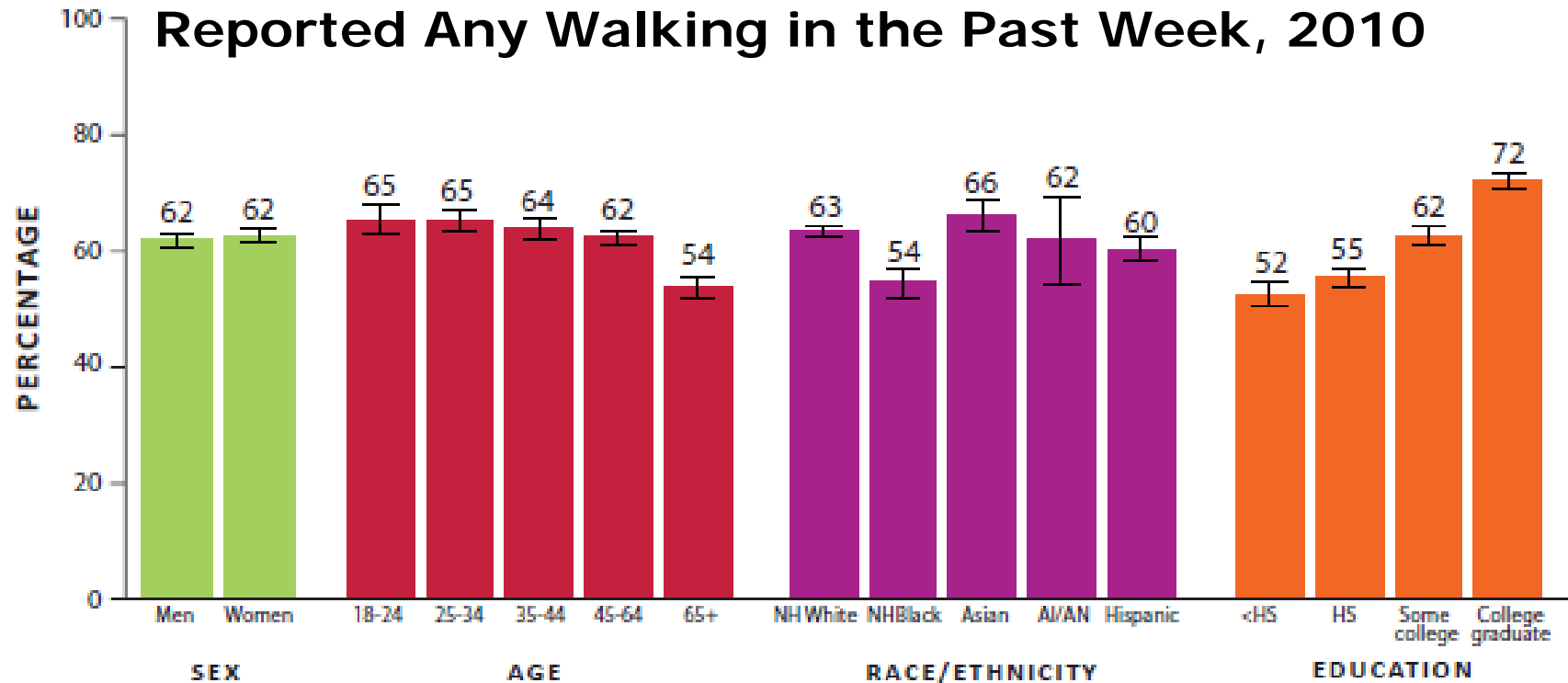


* $p < 0.001$

Watson KB et al. *J Phys Activity and Health*, 2015

Adult Physical Activity

Percentage of U.S. Adults Aged 18 Years or Older Who Reported Any Walking in the Past Week, 2010



USDHHS. Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2015.



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- Measurement
 - Psychometric properties
- Differences across systems
- Essential measures
- Response rates
- State and local levels
- Long-term trends
- Alternative methods



Fulton JE, Carlson SA, et al. *Med Sci Sports Exerc.* Published on-line June 1 2016.



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- **Youth**
 - About 25% meet aerobic guideline
 - About 20% meet aerobic and muscle strengthening guidelines
 - No change from 2011 to 2015
- **Adults**
 - Half meet aerobic guideline; ~20% meet aerobic and muscle strengthening
 - Small improvements in leisure time; No change in muscle strengthening
 - Walking popular activity for youth and adults
- **Disparities**
 - Disparities persist by age, sex, race/ethnicity, and education



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Thank you!

Questions?



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